MIDI Implementation

Model: VT-4
Date: Oct. 16, 2018
Version: 1.01

1. Receive data

■ System Exclusive Message

Status	Data byte	Status
F0H	iiH, ddH, ...,eeH	F7H

F0H: System Exclusive Message status
ii = ID number: An ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H.
ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH).
dd,...,ee = data: 00H - 7FH (0 - 127)
F7H: EOX (End Of Exclusive)

Of the System Exclusive messages received by this device, the Universal Non-realtime messages and the Universal Realtime messages and the Data Request (RQ1) messages and the Data Set (DT1) messages will be set automatically.

●Universal Non-realtime System Exclusive Messages

○ Identity Request Message

Status	Data byte	Status
F0H	7EH, dev, 06H, 01H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (dev: 10H, 7FH)
06H	Sub ID#1 (General Information)
01H	Sub ID#2 (Identity Request)
F7H	EOX (End Of Exclusive)

* When this message is received, Identity Reply message will be transmitted.

●Data Transmission

This instrument can use exclusive messages to exchange many varieties of internal settings with other devices.
The model ID of the exclusive messages used by this instrument is 00H 00H 7BH.

○ Data Request 1 RQ1 (11H)

This message requests the other device to transmit data. The address and size indicate the type and amount of data that is requested.
When a Data Request message is received, if the device is in a state in which it is able to transmit data, and if the address and size are appropriate, the requested data is transmitted as a Data Set 1 (DT1) message. If the conditions are not met, nothing is transmitted.

Status	Data byte	Status
F0H	41H, 10H, 00H, 00H, 00H, 51H, 11H, aaH, bbH, ccH, ddH, ssH, ttH, uuH, vvH, sum	F7H

Byte	Remarks
F0H	Exclusive status
41H	ID number (Roland)
10H	Device ID (dev: 10H)
00H	Model ID #1 (VT-4)
00H	Model ID #2 (VT-4)
00H	Model ID #3 (VT-4)
51H	Model ID #4 (VT-4)
11H	Command ID (RQ1)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
ssH	Size MSB
ttH	Size
uuH	Size
vvH	Size LSB
sum	Checksum
F7H	EOX (End Of Exclusive)

* The size of data that can be transmitted at one time is fixed for each type of data. And data requests must be made with a fixed starting address and size. Refer to the address and size given in "Parameter Address Map".

○ Data set 1 DT1 (12H)

Status	Data byte	Status
F0H	41H, 10H, 00H, 00H, 00H, 51H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
10H	Device ID (dev: 10H)
00H	Model ID #1 (VT-4)
00H	Model ID #2 (VT-4)
00H	Model ID #3 (VT-4)
51H	Model ID #4 (VT-4)
12H	Command ID (DT1)
aaH	Address MSB: upper byte of the starting address of the data to be sent
bbH	Address: upper middle byte of the starting address of the data to be sent
ccH	Address: lower middle byte of the starting address of the data to be sent
ddH	Address LSB: lower byte of the starting address of the data to be sent.
eeH	Data: the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
:	:
ffH	Data
sum	Checksum
F7H	EOX (End Of Exclusive)

* The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size. Refer to the address and size given in "Parameter Address Map".
* Data larger than 256 bytes will be divided into packets of 256 bytes or less, and each packet will be sent at an interval of about 20 ms.

2. Data Transmission

■ System Exclusive Message

Status	Data byte	Status
F0H	iiH, ddH, ..., eeH	F7H

F0H: System Exclusive Message status
ii = ID number: An ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H. ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH).
dd, ..., ee = data: 00H–7FH (0–127)
F7H: EOX (End Of Exclusive)

Universal Non-realtime System Exclusive Messages and Data Set 1 (DT1) are the only System Exclusive messages transmitted by the SH-01.

●Universal Non-realtime System Exclusive Message

○ Identity Reply Message (VT-4)

Receiving Identity Request Message, the VT-4 send this message.

Status	Data byte	Status
F0H	7EH, dev, 06H, 02H, 41H, 51H, 03H, 00H, 00H, 00H, 03H, 00H, 00H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (dev: 10H)
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
51H 03H	Device family code
00H 00H	Device family number code
00H 03H 01H 00H	Software revision level
F7H	EOX (End of Exclusive)

●Data Transmission

○ Data set 1 DT1 (12H)

Status	Data byte	Status
F0H	41H, dev, 00H, 00H, 00H, 51H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number (Roland)	
dev	Device ID (dev: 10H)	
00H	Model ID #1 (VT-4)	
00H	Model ID #2 (VT-4)	
00H	Model ID #3 (VT-4)	
51H	Model ID #4 (VT-4)	
12H	Command ID (DT1)	
aaH	Address MSB:	upper byte of the starting address of the data to be sent
bbH	Address:	upper middle byte of the starting address of the data to be sent
ccH	Address:	lower middle byte of the starting address of the data to be sent
ddH	Address LSB:	lower byte of the starting address of the data to be sent.
eeH	Data:	the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
:	:	
ffH	Data	
sum	Checksum	
F7H	EOX (End Of Exclusive)	

* The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size. Refer to the address and size given in "Parameter Address Map".
* Data larger than 256 bytes will be divided into packets of 256 bytes or less, and each packet will be sent at an interval of about 20 ms.

3. Parameter Address Map

* Transmission of "#" marked address is divided to some packets. For example, ABH in hexadecimal notation will be divided to 0AH and 0BH, and is sent/received in this order.
* "<*>" marked address or parameters are ignored when the VT-4 received them.

VT-4 (ModelID = 00H 00H 00H 51H)

Start Address	Description
00 00 00 00	System
10 00 00 00	Temporary Patch
11 00 00 00	User Patch 1
11 01 00 00	User Patch 2
11 02 00 00	User Patch 3
:	
11 07 00 00	User Patch 8
20 00 00 00	Temporary Robot
21 00 00 00	User Robot 1
21 01 00 00	User Robot 2
21 02 00 00	User Robot 3
21 03 00 00	User Robot 4
30 00 00 00	Temporary Harmony
31 00 00 00	User Harmony 1
31 01 00 00	User Harmony 2
31 02 00 00	User Harmony 3
31 03 00 00	User Harmony 4
40 00 00 00	Temporary Megaphone
41 00 00 00	User Megaphone 1
41 01 00 00	User Megaphone 2
41 02 00 00	User Megaphone 3
41 03 00 00	User Megaphone 4
50 00 00 00	Temporary Reverb
51 00 00 00	User Reverb 1
51 01 00 00	User Reverb 2
51 02 00 00	User Reverb 3
51 03 00 00	User Reverb 4
60 00 00 00	Temporary Vocoder
61 00 00 00	User Vocoder 1
61 01 00 00	User Vocoder 2
61 02 00 00	User Vocoder 3
61 03 00 00	User Vocoder 4

System

Offset Address		Description	
00 00	0aaa aaaa	MIDI CH	(0 - 17) OFF, CH1 - CH16, OMNI
00 01	0000 00aa	GATE LEVEL	(0 - 3) 0 - 3
00 02	0000 00aa	LOW CUT	(0 - 3) 0 - 3
00 03	0000 00aa	ENHANCER	(0 - 3) 0 - 3
00 04	0000 00aa	FORMANT DEPTH	(0 - 3) 0 - 3
00 05	0000 000a	MONITOR MODE	(0 - 1) OFF, ON
00 06	0000 000a	EXTERNAL CARRIER	(0 - 1) OFF, ON
00 07	000a aaaa	USB MIXING	(0 - 20) 0 - 20
00 0F	0aaa aaaa	(reserved) <*>	
00 10	Total Size		

Patch

Offset Address		Description	
00 00	0000 00aa	ROBOT	(0 - 2) OFF, ON, MIDI IN
00 01	0000 000a	HARMONY	(0 - 1) OFF, ON
00 02	0000 000a	VOCODER	(0 - 1) OFF, ON
00 03	0000 000a	MEGAPHONE	(0 - 1) OFF, ON
00 04	0000 0aaa	ROBOT VARIATION	(0 - 7) 1, 2, 3, 4, 5, 6, 7, 8
00 05	0000 0aaa	HARMONY VARIATION	(0 - 7) 1, 2, 3, 4, 5, 6, 7, 8
00 06	0000 0aaa	VOCODER VARIATION	(0 - 7) 1, 2, 3, 4, 5, 6, 7, 8
00 07	0000 0aaa	MEGAPHONE VARIATION	(0 - 7) 1, 2, 3, 4, 5, 6, 7, 8
00 08	0000 0aaa	REVERB VARIATION	(0 - 7) 1, 2, 3, 4, 5, 6, 7, 8

00 09	0000 aaaa 0000 bbbb	PITCH	(0 - 255)
00 0B	0000 aaaa 0000 bbbb	FORMANT	(0 - 255)
00 0D	0000 aaaa 0000 bbbb	BALANCE	(0 - 255)
00 0F	0000 aaaa 0000 bbbb	REVERB	(0 - 255)
00 11	0000 aaaa 0000 bbbb	AUTO PITCH	(0 - 255)
00 13	0000 aaaa	KEY	(0 - 11) C, C♯, D, D♯, E, F, F♯, G, G♯, A, A♯, B
00 20	Total Size		

Robot

Offset Address	Description		
00 00	0000 00aa	OCTAVE	(0 - 3) 2DOWN, DOWN, ZERO, UP
00 01	0000 000a	FEEDBACK SWITCH	(0 - 1) OFF, ON
00 02	0000 aaaa 0000 bbbb	FEEDBACK RESONANCE	(0 - 255)
00 04	0000 aaaa 0000 bbbb	FEEDBACK LEVEL	(0 - 255)
00 10	Total Size		

Harmony

Offset Address	Description		
00 00	0000 aaaa 0000 bbbb	HARMONY 1 LEVEL	(0 - 255)
00 02	0000 aaaa 0000 bbbb	HARMONY 2 LEVEL	(0 - 255)
00 04	0000 aaaa 0000 bbbb	HARMONY 3 LEVEL	(0 - 255)
00 06	0000 aaaa	HARMONY 1 KEY	(0 - 10) -Oct, -7, -6, -5, -3, 0, +3, +5, +6, +7, +Oct
00 07	0000 aaaa	HARMONY 2 KEY	(0 - 10) -Oct, -7, -6, -5, -3, 0, +3, +5, +6, +7, +Oct
00 08	0000 aaaa	HARMONY 3 KEY	(0 - 10) -Oct, -7, -6, -5, -3, 0, +3, +5, +6, +7, +Oct
00 09	0000 aaaa 0000 bbbb	HARMONY 1 GENDER	(0 - 255)
00 0B	0000 aaaa 0000 bbbb	HARMONY 2 GENDER	(0 - 255)
00 0D	0000 aaaa 0000 bbbb	HARMONY 3 GENDER	(0 - 255)
00 20	Total Size		

Megaphone

Offset Address	Description		
00 00	0000 0aaa	MEGAPHONE TYPE	(0 - 3) MEGAPHONE, RADIO, BBD CHORUS, STROBO
00 01	0000 aaaa 0000 bbbb	MEGAPHONE PARAMETER 1	(0 - 255)
00 03	0000 aaaa 0000 bbbb	MEGAPHONE PARAMETER 2	(0 - 255)
00 05	0000 aaaa 0000 bbbb	MEGAPHONE PARAMETER 3	(0 - 255)
00 07	0000 aaaa 0000 bbbb	MEGAPHONE PARAMETER 4	(0 - 255)
00 10	Total Size		

TYPE	MEGAPHONE	RADIO	BBD CHORUS	STROBO
PARAMETER 1	Clip Gain	Drive	Mode	Wave Shape
PARAMETER 2	Direct Level	Sampling Rate	Depth	Rate
PARAMETER 3	Volume	Low Cut	Effect Level	Depth
PARAMETER 4	-	High Cut	Noise Level	Level

Reverb

Offset Address	Description		
00 00	0000 0aaa	REVERB TYPE	(0 - 3) REVERB, ECHO, DELAY, DUB ECHO
00 01	0000 aaaa 0000 bbbb	REVERB PARAMETER 1	(0 - 255)
00 03	0000 aaaa 0000 bbbb	REVERB PARAMETER 2	(0 - 255)
00 05	0000 aaaa 0000 bbbb	REVERB PARAMETER 3	(0 - 255)
00 07	0000 aaaa 0000 bbbb	REVERB PARAMETER 4	(0 - 255)
00 10	Total Size		

TYPE	REVERB	ECHO	DELAY	DUB ECHO
PARAMETER 1	Pre Delay	Pre Delay	Mode	Mode
PARAMETER 2	Feedback	Feedback	Sync Note	Feedback
PARAMETER 3	Low Cut	Low Cut	Low Cut	Low Cut
PARAMETER 4	High Cut	High Cut	High Cut	High Cut

Vocoder

Offset Address	Description		
00 00	0000 0aaa	VOCODER TYPE	(0 - 4) VINTAGE, ADVANCED, TALK BOX, SPELL TOY
00 01	0000 aaaa 0000 bbbb	VOCODER PARAMETER 1	(0 - 255)
00 03	0000 aaaa 0000 bbbb	VOCODER PARAMETER 2	(0 - 255)
00 05	0000 aaaa 0000 bbbb	VOCODER PARAMETER 3	(0 - 255)
00 07	0000 aaaa 0000 bbbb	VOCODER PARAMETER 4	(0 - 255)
00 10	Total Size		

TYPE	VINTAGE	ADVANCED	TALK BOX	SPELL TOY
PARAMETER 1	Release	Release	Release	Release
PARAMETER 2	Tone	Tone	Formant Depth	Tone
PARAMETER 3	Consonant	OSC Color	OSC Color	OSC Color
PARAMETER 4	Effect Level	Effect Level	Effect Level	Effect Level

4. Supplementary Material

■ Decimal and Hexadecimal Table

(An "H" is appended to the end of numbers in hexadecimal notation.)
In MIDI documentation, data values and addresses/sizes of Exclusive messages, etc. are expressed as hexadecimal values for each 7 bits.
The following table shows how these correspond to decimal numbers.

D	H	D	H	D	H	D	H
0	00H	32	20H	64	40H	96	60H
1	01H	33	21H	65	41H	97	61H
2	02H	34	22H	66	42H	98	62H
3	03H	35	23H	67	43H	99	63H
4	04H	36	24H	68	44H	100	64H
5	05H	37	25H	69	45H	101	65H
6	06H	38	26H	70	46H	102	66H
7	07H	39	27H	71	47H	103	67H
8	08H	40	28H	72	48H	104	68H
9	09H	41	29H	73	49H	105	69H
10	0AH	42	2AH	74	4AH	106	6AH
11	0BH	43	2BH	75	4BH	107	6BH
12	0CH	44	2CH	76	4CH	108	6CH
13	0DH	45	2DH	77	4DH	109	6DH
14	0EH	46	2EH	78	4EH	110	6EH
15	0FH	47	2FH	79	4FH	111	6FH
16	10H	48	30H	80	50H	112	70H
17	11H	49	31H	81	51H	113	71H
18	12H	50	32H	82	52H	114	72H
19	13H	51	33H	83	53H	115	73H
20	14H	52	34H	84	54H	116	74H
21	15H	53	35H	85	55H	117	75H
22	16H	54	36H	86	56H	118	76H
23	17H	55	37H	87	57H	119	77H
24	18H	56	38H	88	58H	120	78H
25	19H	57	39H	89	59H	121	79H
26	1AH	58	3AH	90	5AH	122	7AH
27	1BH	59	3BH	91	5BH	123	7BH
28	1CH	60	3CH	92	5CH	124	7CH
29	1DH	61	3DH	93	5DH	125	7DH
30	1EH	62	3EH	94	5EH	126	7EH
31	1FH	63	3FH	95	5FH	127	7FH

D: decimal
H: hexadecimal

* Decimal values such as MIDI channel, bank select, and program change are listed as one greater than the values given in the above table.
* A 7-bit byte can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bit bytes would indicate a value of aa x 128+bb.
* In the case of values which have a +/- sign, 00H = -64, 40H = +/-0, and 7FH = +63, so that the decimal expression would be 64 less than the value given in the above chart. In the case of two types, 00 00H = -8192, 40 00H = +/-0, and 7F 7FH = +8191. For example, if aa bbH were expressed as decimal, this would be aa bbH - 40 00H = aa x 128+bb - 64 x 128.
* Data marked "Use nibbled data" is expressed in hexadecimal in 4-bit units. A value expressed as a 2-byte nibble 0a 0bH has the value of a x 16+b.

<Example 1> What is the decimal expression of 5AH?
From the preceding table, 5AH = 90

<Example 2> What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?
From the preceding table, since 12H = 18 and 34H = 52
18 x 128+52 = 2356

<Example 3> What is the decimal expression of the nibbled value 0A 03 09 0D?
From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13
((10 x 16+3) x 16+9) x 16+13 = 41885

<Example 4> What is the nibbled expression of the decimal value 1258?

```
16 ) 1258
16 )   78 ...10
16 )    4 ...14
        0 ... 4
```

Since from the preceding table, 0 = 00H, 4 = 04H, 14 = 0EH, 10 = 0AH, the result is: 00 04 0E 0AH.

■ Example of an Exclusive Message and Calculating a Checksum

Roland Exclusive messages (RQ1, DT1) are transmitted with a checksum at the end (before F7) to make sure that the message was correctly received. The value of the checksum is determined by the address and data (or size) of the transmitted Exclusive message.

●How to calculate the checksum

(hexadecimal numbers are indicated by "H")
The checksum is a value derived by adding the address, size, and checksum itself and inverting the lower 7 bits.
Here's an example of how the checksum is calculated. We will assume that in the Exclusive message we are transmitting, the address is aa bb cc ddH and the data or size is ee ffH.

aa + bb + cc + dd + ee + ff = sum
sum ÷ 128 = quotient ... remainder
128 - remainder = checksum

<Example 1> Setting Variation of Harmony to number 2 (DT1)
According to the "Parameter Address Map", the address is 10 00 00 05H.
So the system exclusive message should be sent is;

F0	41	10	00 00 00 51	12	10 00 00 05	01	??	F7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)

(1) Exclusive Status (2) ID (Roland) (3) Device ID (17)
(4) Model ID (VT-4) (5) Command ID (DT1) (6) End of Exclusive

Then calculate the checksum.

10H + 00H + 00H + 05H + 01H = 16 + 0 + 0 + 5 + 1 = 22 (sum)
22 (sum) ÷ 128 = 0 (quotient) ... 22 (remainder)
checksum = 128 - 22 (remainder) = 106 = 6AH

This means that F0 41 10 00 00 00 51 12 10 00 00 05 01 6A F7 is the message should be sent.

<Example 2> Request Value of the Pitch (RQ1)
According to the "Parameter Address Map", the address is 10 00 00 09H.
So the system exclusive message should be sent is;

F0	41	10	00 00 00 51	11	10 00 00 09	00 00 00 02	??	F7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)

(1) Exclusive Status (2) ID (Roland) (3) Device ID (17)
(4) Model ID (VT-4) (5) Command ID (RQ1) (6) End of Exclusive

Then calculate the checksum.

10H + 00H + 00H + 09H+ 00H + 00H + 00H + 02H =
16 + 0 + 0 + 9 + 0 + 0 + 0 + 2 = 27 (sum)
27 (sum) ÷ 128 = 0 (quotient) ... 27 (remainder)
checksum = 128 - 27 (remainder) = 101 = 65H

This means that F0 41 10 00 00 00 51 11 10 00 00 09 02 65 F7 is the message should be sent.

■ ASCII Code Table

Patch Name, etc., of MIDI data are described the ASCII code in the table below.

D	H	Char	D	H	Char	D	H	Char
32	20H	SP	64	40H	@	96	60H	`
33	21H	!	65	41H	A	97	61H	a
34	22H	“	66	42H	B	98	62H	b
35	23H	#	67	43H	C	99	63H	c
36	24H	$	68	44H	D	100	64H	d
37	25H	%	69	45H	E	101	65H	e
38	26H	&	70	46H	F	102	66H	f
39	27H	`	71	47H	G	103	67H	g
40	28H	(	72	48H	H	104	68H	h
41	29H	)	73	49H	I	105	69H	i
42	2AH	*	74	4AH	J	106	6AH	j
43	2BH	+	75	4BH	K	107	6BH	k
44	2CH	,	76	4CH	L	108	6CH	l
45	2DH	-	77	4DH	M	109	6DH	m
46	2EH	.	78	4EH	N	110	6EH	n
47	2FH	/	79	4FH	O	111	6FH	o
48	30H	0	80	50H	P	112	70H	p
49	31H	1	81	51H	Q	113	71H	q
50	32H	2	82	52H	R	114	72H	r
51	33H	3	83	53H	S	115	73H	s
52	34H	4	84	54H	T	116	74H	t
53	35H	5	85	55H	U	117	75H	u
54	36H	6	86	56H	V	118	76H	v
55	37H	7	87	57H	W	119	77H	w
56	38H	8	88	58H	X	120	78H	x
57	39H	9	89	59H	Y	121	79H	y
58	3AH	:	90	5AH	Z	122	7AH	z
59	3BH	;	91	5BH	[	123	7BH	{
60	3CH	<	92	5CH	\	124	7CH	|
61	3DH	=	93	5DH	]	125	7DH	}
62	3EH	>	94	5EH	^			
63	3FH	?	95	5FH	_			

D: decimal
H: hexadecimal

* “SP” is space.

MIDI Implementation Chart

Function...		**Transmitted**	**Recognized**	**Remarks**
Basic	Default	1–16	1–16	Memorized
Channel	Changed	1–16	1–16	
	Default	×	Mode 2	
Mode	Messages	×	×	
	Altered	**********	**********	
Note		×	0–127	
Number	: True Voice	**********	0–127	
Velocity	Note On	×	×	
	Note Off	×	×	
After	Key's	×	×	
Touch	Channel's	×	×	
Pitch Bend		○	○	PITCH
	1	×	○	MODULATION
	46	○	○	VOLUME
	47	○	○	MIC SENS
	48	○	○	KEY
	49	○	○	ROBOT (0, 127)
	50	○	○	MEGAPHONE (0, 127)
	51	○	○	BYPASS (0, 127)
	52	○	○	VOCODER (0, 127)
	53	○	○	HARMONY (0, 127)
Control	54	○	○	FORMANT
Change	55	○	○	AUTO PITCH
	56	○	○	BALANCE
	57	○	○	REVERB
	58	○	○	LINE OUT SELECT (0, 127)
	76	×	○	MODULATION RATE
	79	×	○	ROBOT VARIATION
	80	×	○	MEGAPHONE VARIATION
	81	×	○	VOCODER VARIATION
	82	×	○	HARMONY VARIATION
	83	×	○	REVERB VARIATION
Program		○	○	
Change	: True Number	0–4	0–8	MANUAL, Scene 1–8
System Exclusive		×	○	
System	: Song Position	×	×	
Common	: Song Select	×	×	
	: Tune Request	×	×	
	: Clock	×	○	
System	: Start	×	×	
Real Time	: Continue	×	×	
	: Commands	×	×	
	: All Sound Off	×	×	
	: Reset All Controllers	×	×	
	: Local On/Off	×	×	
	: All Notes Off	×	×	
Aux	: Omni Mode Off	×	×	
Messages	: Omni Mode On	×	×	
	: Mono Mode On	×	×	
	: Poly Mode On	×	×	
	: Active Sensing	×	×	
	: System Reset	×	×	

Mode 1 : OMNI ON, POLY
Mode 2 : OMNI ON, MONO
Mode 3 : OMNI OFF, POLY
Mode 4 : OMNI OFF, MONO

○ : Yes
× : No